

EC Declaration of Conformity

According to
Low Voltage Directive 2006/95/EC

Report No: 10EMC-CE-S004
Type of equipment: CAMERA HOUSING
Model Name: SHB-4300H2
Applicant: SAMSUNG TECHWIN CO., LTD.
Address: 28, Seongju-Dong, Changwon-City,
Gyeongsangnam-Do, Korea (641-716)
Manufacturer: NINGBO KEVIS INC
Address: #10-5 Laoshanlu, Dagang IND Zone,
Beilun, Ningbo, Zhejiang, China
Test Standards: EN 60065: 2002

* The standards relevant for the evaluation of LVD requirements are as follows.

Complies with the essential requirements of Low Voltage Directive 2006/95/EC and CE-Marking accordingly. This declaration applies to all specimens manufactured in accordance with manufacturer's technical manufacturing drawings.

Assessment of compliance of the product with the requirements relating electronics safety was based on the harmonized standards.

Date of issue: February 17, 2010

SAMSUNG TECHWIN CO., LTD.

28, Seongju-Dong, Changwon-City,
Gyeongsangnam-Do, Korea (641-716)

(Name and signature of authorized person)

SAFETY TEST REPORT

EN 60065:2002

Audio, Video and similar apparatus Safety requirements

Report No.	10EMC- CE- S004
Type of equipment	CAMERA HOUSING
Applicant (Name/Address)	SAMSUNG TECHWIN CO., LTD. 28, Seongju-Dong, Changwon-City, Gyeongsangnam-Do, Korea (641-716)
Trade mark	
Manufacturer (Name/Address)	NINGBO KEVIS INC. #10-5 Laoshanlu, Dagang IND Zone, Beilun, Ningbo, Zhejiang, China
Model No.	SHB-4300H2
Electrical Ratings	AC 230 V~, 50 Hz, 55 W, Class I

The equipment complies with the principal protection requirements of Low Voltage Directive (Directive 2006/95/EEC relating to electrical equipment designed for uses within certain voltage limits) based on a voluntary test. This report applied only to the particular sample of the product provided for testing. Also this test report shall not be reproduced except in full, without the written approval of EMC compliance Laboratory.

This test result carried out from a sample of the submitted type in conformity with the specification of the respective standards.

This test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark on this or similar products.

TEST REPORT

IEC/EN 60065

**Audio, video and similar electronic apparatus
Safety requirements**

Report Reference No. : 10EMC-CE-S004

Tested by (+ signature) : Surk-Chan, Yun

Approved by (+ signature) : Jae-Kyu, Lee

Date of issue : 2010-02-17

Testing laboratory Name : EMC COMPLIANCE LTD.

Address : 480-5 Shin-dong, Yeongtong-gu, Suwon-shi, Kyunggi-do,
443-390, Korea.

Applicant's Name : SAMSUNG TECHWIN CO., LTD.

Address : 28, Seongju-Dong, Changwon-City, Gyeongsangnam-Do,
Korea (641-716)

Standard : EN 60065:2002, 7th Edition

Test procedure : CCA-Scheme

Non-standard test method : N.A.

Test Report Form/blank test report

Test Report Form No. : REPORT.DOT

TRF originator : -

Master TRF : -

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Test item Description : CAMERA HOUSING

Trademark :

Model and/or type reference : SHB-4300H2

Manufacturer : NINGBO KEVIS INC

Rating(s) : 230 V~, 50 Hz, 55 W

Test case verdicts

Test case does not apply to the test object.....: N(A.)

Test item does meet the requirement: P(ass)

Test item does not meet the requirement: F(ail)

Testing

Date of receipt of test item: 2010-02-05

Date(s) of performance of test.....: 2010-02-08 until 2010-02-12

General remarks

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

"(see appended table)" refers to a table appended to the report.

"(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

Summary of Testing and Conclusions

The sample(s) tested complies with the requirements of IEC/EN 60065:2002. Compliance with European Special National Conditions, Annex ZB, and A – Deviations, Annex ZC, is recorded at the end of this report.

General product information:

- **The following contents that are included in this test report are**
- Test report : 26 pages
- Attachment 1 : 3 pages (Photograph)

Copy of marking plate



Clause	Requirement – Test	Result - Remark	Verdict
3	GENERAL REQUIREMENTS		
	Safety class of the apparatus :		P
4	GENERAL CONDITIONS OF TESTS		
4.1.4	Ventilation instructions require the use of the test box :		N/A
5	MARKING		
	Comprehensible and easily discernible	On the side of the enclosure, The marking is easily Comprehensible and easily discernible when ready for use	P
	Permanent durability against water and petroleum spirit	The marking is not removed when rubbed lightly with a piece of cloth soaked with petroleum spirit or water	P
5.1	Identification, maker, model :	 , SHB-4300H2	P
	Class II symbol if applicable	No Class II equipment	N/A
	Rated supply voltage and symbol :	230 V~	P
	Frequency if safety dependant	50 Hz	P
	Rated current or power consumption :	55 W	P
5.2	Earth terminal	 Bottom steel	P
	Hazardous live terminals		N/A
	Supply output terminals (other than mains)		N/A
5.3	Use of triangle with exclamation mark	In circuit diagram	P
5.4	Instructions for use	English	P
5.4.1	Mains powered equipment not exposed to dripping or splashing. Warning concerning objects filled with liquid, etc.		N/A
	Hazardous live terminals, instructions for wiring		N/A
	Instructions for replacing lithium battery	No lithium battery	N/A
	Instructions for modem if fitted		N/A
	Class I earth connection warning	In user manual	P
	Instructions for multimedia system connection		N/A
	Special stability warning for fixed installation		P
	Warning: battery exposure to heat		N/A

Clause	Requirement – Test	Result - Remark	Verdict
	Warning: protective film on CRT face		N/A
5.4.2	Disconnect device: plug/coupler or all-pole mains switch location, accessibility and markings		P
	Instructions for permanently connected equipment		N/A
6	HAZARDOUS RADIATION		
6.1	Ionizing radiation < 36 pA/kg (0,5 mR/h)	No Ionizing radiation	N/A
EN 60065	European Council Directive 96/29/Euratom of 13 May 1996 10cm from outer surface of apparatus <1µSv/h (0,1mR/h)	No laser	N/A
6.2	Laser radiation, emission limits to IEC 60825-1 :		N/A
	Emission limits under fault conditions :		N/A
7	HEATING UNDER NORMAL OPERATING CONDITIONS		
7.1	Temperature rises not exceeding specified values, no operation of fuse links	(see appended table)	P
7.1.1	Temperature rise of accessible parts	(see appended table)	P
7.1.2	Temperature rise of parts providing electrical insulation	(see appended table)	P
7.1.3	Temperature rise of parts acting as a support or as a mechanical barrier		N/A
7.1.4	Temperature rise of windings	(see appended table)	P
7.1.5	Parts not subject to a limit under 7.1.1 to 7.1.4	(see appended table)	P
7.2	Softening temperature of insulating material supporting parts conductively connected to the mains carrying a current > 0,2 A at least 150 °C	(see appended table)	N/A
8	CONSTRUCTIONAL REQUIREMENTS WITH REGARD TO THE PROTECTION AGAINST ELECTRIC SHOCK		
8.1	Conductive parts covered by lacquer, paper, untreated textile oxide films and beads etc. considered to be bare	Considered	P
8.2	No shock hazard when changing voltage setting device, fuse-links or handling drawers etc.	No change of voltage setting or fuse by hand.	N/A
8.3	Insulation of hazardous live parts not provided by hygroscopic material	No hygroscopic material used	N/A
8.4	No risk of electric shock following the removal of a cover which can be removed by hand	No removal of cover by hand	N/A
8.5	Class I equipment		P
	Basic insulation between hazardous live parts and earthed accessible parts		P

Clause	Requirement – Test	Result - Remark	Verdict
	Resistors bridging basic insulation complying with 14.2.1 a)		N/A
8.6	Class II equipment and Class II constructions within Class I equipment	Class I	N/A
	Reinforced or double insulation between hazardous live parts and accessible parts		N/A
	Components bridging reinforced or double insulation complying with 14.1 a) or 14.3		N/A
	Basic and supplementary insulation each being bridged by a capacitor complying with 14.2.1 a)		N/A
	Reinforced or double insulation being bridged with 2 capacitors in series complying with 14.2.1 a)		N/A
	Reinforced or double insulation being bridged with a single capacitor complying with 14.2.1 b)		N/A
	Basic insulation bridged by components complying with 14.3.4.3		N/A
8.7	Basic insulation between parts at 35 V to 71 V (peak) a.c. or 60 V to 120 V d.c. and accessible parts		N/A
	Reinforced or double insulation between circuits operating at voltages between 35 V and 71 V (peak) a.c. or between 60 V and 120 V d.c. and hazardous live parts at higher voltage		N/A
	Separation by Class II isolating transformer		N/A
	Separation by Class I transformer		N/A
	Separation by earthed conductive part		N/A
8.8	Basic or supplementary insulation > 0,4 mm (mm) :		P
	Reinforced insulation > 0,4 mm (mm):		P
	Thin sheet insulation	(see clause 14.3.4.1)	N/A
	Basic or supplementary insulation, at least two layers, each meeting 10.3		N/A
	Basic or supplementary insulation, three layers any two of which meet 10.3		N/A
	Reinforced insulation, two layers each of which meet 10.3		N/A
	Reinforced insulation, three layers any two which meet 10.3		N/A
8.9	Adequate insulation between internal hazardous live conductors and accessible parts	Provided double or reinforce insulation	P
	Adequate insulation between internal hazardous live parts and conductors connected to accessible parts	Dressed away from live parts	P

Clause	Requirement – Test	Result - Remark	Verdict
8.10	Double insulation between conductors connected to the mains and accessible parts Double insulation between internal hazardous live parts and conductors connected to accessible parts.		P
8.11	Detaching of wires		P
	No undue reduction of creepages or clearance distances if wires become detached	Connectors provided for all detaching of wires	P
	Vibration test carried out :	No risk of wire becoming detached	P
8.12	Adequate cross-sectional area of internal wiring to mains socket-outlets	Not provided mains socket-outlets incorporated in the apparatus	N/A
8.13	Adequate fastening of windows, lenses, lamp covers etc. (pull test 20 N for 10 s)		P
8.14	Adequate fastening of covers (pull test 50 N for 10 s)	No cover subjected to forces during intended use	N/A
8.15	No risk of damage to the insulation of internal wiring due to hot parts or sharp edges	No damaged to the insulation of internal wiring	P
8.16	Only special supply equipment can be used	No special supply equipment	N/A
8.17	Insulated winding wire without additional interleaved insulation		N/A
8.18	Endurance test as required by 8.17		N/A
8.19	Disconnection from the mains		P
8.19.1	Disconnect device	Mains plug	P
	All-pole switch or circuit breaker with >3mm contact separation		N/A
8.19.2	Mains switch ON indication		N/A
8.20	Switch not fitted in the mains cord	No switch in the mains cord	N/A
8.21	Bridging components comply with clause 14	Not provided a components used for bridging contact gaps of switches conductively connected to mains	N/A
8.22	Non-separable thin sheet material		

9	ELECTRIC SHOCK HAZARD UNDER NORMAL OPERATING CONDITIONS		
9.1	Testing on the outside		
9.1.1	For voltages >1000 V ac or >1500 V dc complies with clause 13.3.1 for basic insulation	No exceeding 1000 Vac or 1500 Vdc	N/A
9.1.1.1	Touch current measured from terminal devices using the network in annex D	Class I construction : 0.02 mA	P

Clause	Requirement – Test	Result - Remark	Verdict
	Discharge not exceeding 45 µC	Not exceedind 60 Vdc	N/A
	Energy of discharge not exceeding 350 mJ	Not exceedind 15 kVdc	N/A
9.1.1.2	Test with test finger and test probe	Not touched hazardous live parts	P
9.1.2	No hazardous live shafts of knobs, handles or levers	Not provided	N/A
9.1.3	Ventilation holes and other holes tested by means of 4 mm x 100 mm test pin	No openings	P
9.1.4	Terminal devices tested with 1 mm x 20 mm test pin (10 N); test probe D of IEC 61032	No terminal device	N/A
	Terminal devices tested with 1 mm x 100 mm straight wire (1 N); test probe D of IEC 61032	No terminal device	N/A
9.1.5	Pre-set controls tested with 2.5 mm x 100 mm test pin (10 N); test probe C of IEC 61032	No pre-set controls	N/A
9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s :	No ac mains capacitor	N/A
	If C is not greater than 0,1 µF no test needed		P
9.1.7	Enclosure sufficiently resistant to external force		P
	Test probe 11 of IEC 61032 for 10 s (50 N)	The test probe cannot contacted hazardous live part	P
	Test hook of fig. 4 for 10 s (20 N)	The test hook cannot contacted hazardous live part	P
	30 mm diameter test tool for 5 s (100 or 250 N) :	Applied 100 N	P
9.2	No hazard after removing a cover by hand	No removing a cover by hand	N/A

10	INSULATION REQUIREMENTS		
10.1	Insulation resistance (MΩ) at least 2 MΩ min. after surge test for basic and 4 MΩ min. for reinforced insulation	(see appended table 10.3)	P
10.2	Humidity treatment 48 h or 120 h	48 h, 32 °C, 93%	P
10.3	Insulation resistance and dielectric strength	(see appended table)	P
	Insulation Resistance and dielectric strength across BASIC or SUPPLEMENTARY insulation (Class I)	(see appended table)	P
	Insulation Resistance and dielectric strength across REINFORCED insulation (Class II)		N/A

11	FAULT CONDITIONS		
11.1	No shock hazard under fault condition	No electric shock hazard under fault conditions.	P

Clause	Requirement – Test	Result - Remark	Verdict
11.2	Heating under fault condition	(see appended table)	P
	No hazard from softening solder	No softening of solder	P
	Flames extinguish within 10 seconds	No flames	P
	Soldered terminations not used as protective mechanism	No soldered terminations	P
11.2.1	Measurement of temperature rises	(see appended table)	P
11.2.2	Temperature rise of accessible parts	(see appended table)	P
11.2.3	Temperature rise of parts, other than windings, providing electrical insulation	(see appended table)	P
	Temperature rise of printed circuit boards (PCB) exceeding the limits of table 3 by max. 100 K for max. 5 min	No exceeding the limits of table 3	N/A
	a) Temperature rise of printed circuit boards (PCB) to 20.1.3, exceeding the limits of table 3 by not more than 100 K for an area not greater than 2 cm ²		N/A
	b) Temperature rise of printed circuit boards (PCB) to 20.1.3 up to 300 K for an area not greater than 2 cm ² for a maximum of 5 min		N/A
	Meets all the special conditions if conductors on printed circuit boards are interrupted		N/A
	Class I protective earthing maintained		P
11.2.4	Temperature rise of parts acting as a support or mechanical barrier	(see appended table)	N/A
11.2.5	Temperature rise of windings	(see appended table)	N/A
11.2.6	Temperature rise of parts not subject to the limits of 11.2.1 to 11.2.5	(see appended table)	P

12	MECHANICAL STRENGTH		
12.1.1	Bump test where mass >7 kg	Weight: 3.7 kg	N/A
12.1.2	Vibration test	No damage	P
12.1.3	Impact hammer test	0.5 J	P
	Steel ball test	2 J	P
12.1.4	Drop test for portable apparatus where mass < 7 kg	Not portable apparatus	N/A
12.1.5	Thermoplastic enclosures stress relief test	Not provided	N/A
12.2	Fixing of knobs, push buttons, keys and levers	Not provided	N/A
12.3	Remote controls with hazardous live parts	Not provided	N/A
12.4	Drawers (pull test 50 N, 10 s)	Not provided	N/A
12.5	Antenna coaxial sockets providing isolation	Not provided	N/A

Clause	Requirement – Test	Result - Remark	Verdict
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12.6	Telescoping or rod antennas construction	Not provided	N/A
12.6.1	Telescoping or rod antennas securement	Not provided	N/A

13	CLEARANCE AND CREEPAGE DISTANCES		
13.1	Clearances in accordance with 13.3	Considered	P
	Creepage distances in accordance with 13.4	Considered	P
13.2	Determination of operating voltage	Considered	P
13.3	Clearances	-2 N for internal parts -30 N for external parts	P
13.3.2	Circuits conductively connected to the mains comply with table 8 and, where applicable, table 9		P
13.3.3	Circuits not conductively connected to the mains comply with table 10		N/A
13.3.4	Measurement of transient voltage		N/A
13.4	Creepage distances	230 Vrms	P
	Creepage distances greater than table 11 minima		P
13.5	Printed boards		N/A
13.5.1	Clearances and creepage distances between conductors on printed circuit boards, one of which may be conductively connected to the mains, as in fig. 10		N/A
13.5.2	Type B coated printed circuit boards complying with IEC 60664-3 (basic insulation only)		N/A
13.6	Conductive parts along uncemented joints clearances and creepage distances comply with 13.3 and 13.4		N/A
	Conductive parts along reliably cemented joints comply with 8.8		N/A
	Temperature cycle test and dielectric strength test		N/A
13.7	Enclosed, enveloped or hermetically sealed parts: not conductively connected to the mains: clearances and creepage distances as in table 12		N/A
13.8	Parts filled with insulating compound, meeting the requirements of 8.8		N/A

14	COMPONENTS		
14.1	Resistors		
	a) Resistors between hazardous live parts and accessible metal parts	No such component	N/A

Clause	Requirement – Test	Result - Remark	Verdict
	b) Resistors, other than between hazardous live parts and accessible parts		N/A
	b) Resistors separately approved		N/A
14.2	Capacitors and RC units	No such component	N/A
	Capacitors separately approved		N/A
14.2.1	Y capacitors tested to IEC 60384-14, 2 nd edition ..		N/A
14.2.2	X capacitors tested to IEC 60384-14, 2 nd edition ..		N/A
14.2.3	Capacitors operating at mains frequency but not connected to the mains: tests for X2		N/A
14.2.5	Capacitors with volume exceeding 1750 mm ³ , where short-circuit current exceeds 0,2 A: compliance with IEC60384-1, 4.38 category B or better		N/A
	Capacitors with volume exceeding 1750 mm ³ , mounted closer to a potential ignition source than table 5 permits: compliance with IEC 60 384-1, 4.38 category B or better		N/A
	Shielded by a barrier to V-0 or metal		N/A
14.3	Inductors and windings	No such component	N/A
	Comply with IEC 61558-1, IEC 61558-2 (as relevant) and clause 20.1.4		N/A
14.3.1	Transformers and inductors marked with manufacturer's name and type		N/A
	Transformers and inductors separately approved ..		N/A
14.3.2	General	No such component	N/A
	Insulation material complies with clause 20.1.4		N/A
14.3.3	Constructional requirements		N/A
14.3.3.1	Clearances and creepage distances comply with clause 13		N/A
14.3.3.2	Transformers meet the constructional requirements		N/A
14.3.4.1	Class II transformers have adequate separation between hazardous live parts and accessible parts (double or reinforced insulation)		N/A
	Coil formers and partition walls > 0,4 mm		N/A
14.3.4.2	Class I transformers, with basic insulation and protective screening only if all 7 conditions of 14.3.4.2 are met		N/A
14.3.4.3	Separating transformers with at least basic insulation		N/A

Clause	Requirement – Test	Result - Remark	Verdict
14.3.5.1	Class II transformers have adequate insulation between hazardous live parts and accessible parts (double or reinforced insulation)		N/A
	Coil formers and partition walls > 0,4 mm		N/A
14.3.5.2	Class I transformers have adequate insulation between hazardous live parts and accessible conductive parts or those conductive parts or protective screens connected to a protective earth terminal		N/A
	Winding wires connected to protective earth have adequate current-carrying capacity		N/A
14.4	High voltage components		N/A
	High-voltage components and assemblies: U > 4 kV (peak) separately approved	No high-voltage components	N/A
	Component meets category V-1 of IEC 60707		N/A
14.4.1	High voltage transformers and multipliers tested as part of the submission		N/A
14.4.2	High voltage assemblies and other parts tested as part of the submission		N/A
14.5	Protective devices		P
	Protective devices used within their ratings	FUSE: T2.0AH 250V	P
	External clearances and creepage distances meet requirement of clause 13 for the voltage across the device when opened	Min. 2.5 mm	P
14.5.1.1	a) Thermal cut-outs separately approved	No such component	N/A
	b) Thermal cut-outs tested as part of the submission		N/A
14.5.1.2	a) Thermal links separately approved	No such component	N/A
	b) Thermal links tested as part of the submission		N/A
14.5.1.3	Thermal devices re-settable by soldering	No such component	N/A
14.5.2.1	Fuse-links in the mains circuit according to IEC 60127	(see appended table 14)	P
14.5.2.2	Correct marking of fuse-links adjacent to holder ... :	FUSE: T2.0AH 250V	P
14.5.2.3	Not possible to connect fuses in parallel :	No connect fuse in parallel	N/A
14.5.2.4	Not possible to touch hazardous live parts when replacing fuse-links without the use of a tool :	In service area	P
14.5.3	PTC-S thermistors comply with IEC 60730-1	No PTC-S thermistors	N/A
	PTC-S devices (15 W) category V-1 or better	No PTC-S devices	N/A
14.5.4	Circuit protectors have adequate breaking capacity and their position is correctly marked		N/A

Clause	Requirement – Test	Result - Remark	Verdict
14.6	Switches	No switches	N/A
14.6.1 a)	Separate testing to IEC 61058 including: 10 000 operations Normal pollution suitability Resistance to heat and fire level 3 and Make and break speed independent of speed of actuation V-0 compliance with annex G, G.1.1		N/A
14.6.1 b)	Tested in the apparatus: Switch controlling > 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.3, 14.6.4 and V-0 in annex G, G.1.1		N/A
	Switch controlling > 0.2A with open contact voltage < 35 V (peak)/24 V dc complying with 14.6.3 and V-0 in annex G, G.1.1		N/A
	Switch controlling < 0.2A with open contact voltage > 35 V (peak)/24 V dc complying with 14.6.4 and V-0 in annex G, G.1.1		N/A
14.6.2	Switch tested to 14.6.1 b) constructed to IEC 61058-1 subclause 13.1 and has making/breaking action independent of speed of actuation		N/A
14.6.3	Switch tested to 14.6.1 b) compliant with IEC 61058-1 subclause 16.2.2 d) and m) not attaining excessive temperatures in use		N/A
14.6.4	Switch tested to 14.6.1 b) has adequate dielectric strength		N/A
14.6.5	Mains switch controlling mains socket outlets additional tests to IEC 60058-1 Socket outlet current marking correct		N/A
14.7	Safety interlocks	No safety interlocks	N/A
	Safety interlocks to 2.8 of IEC 60950		N/A
14.8	Voltage setting devices	No voltage setting devices	N/A
	Voltage setting device not likely to be changed accidentally		N/A
14.9	Motors	AC Fan for CE approved type use	P
14.9.1	Endurance test on motors		N/A
	Motor start test		N/A
	Dielectric strength test		N/A
14.9.2	Not adversely affected by oil or grease etc.		N/A
14.9.3	Protection against moving parts	No moving parts	N/A

Clause	Requirement – Test	Result - Remark	Verdict
14.9.4	Motors with phase-shifting capacitors, three-phase motors and series motors meet clause. B.8, B.9 and B.10 of IEC 60950, Annex B		N/A
14.10	Batteries	No batteries	N/A
14.10.1	Batteries mounted with no risk of accumulation of flammable gases		N/A
14.10.2	No possibility of recharging non-rechargeable batteries		N/A
14.10.3	Recharging currents and times within manufacturers limits		N/A
	Lithium batteries discharge and reverse currents within the manufacturers limits		N/A
14.10.4	Battery mould stress relief		N/A
14.10.5	Battery drop test		N/A
14.11	Optocouplers	No optocouplers	N/A
	Optocouplers comply with Cl. 8		N/A
	Internal and external dimensions to 13.1. or alternatively 13.6 (jointed insulation)		N/A
14.12	Surge suppression varistors	No surge suppression varistors	N/A
	Comply with IEC 61051-2		N/A
	Not connected between mains and accessible parts except for earthed parts of permanently connected apparatus		N/A
	Complies with the current pulse, fire hazard and thermal stress requirements of 14.12		N/A

15	TERMINALS		
15.1.1	Mains plug, appliance inlet, interconnection couplers and mains socket-outlet meet the appropriate standard	Used an approved plug	P
	Overloading of plugs or appliance inlets prevented if the apparatus has mains socket outlets	No socket-outlets	N/A
	Overloading of internal wiring prevented if the apparatus has mains socket outlets		N/A
15.1.2	Connectors for antenna, earth, audio, video or data:		
	No risk of insertion in mains socket-outlets	No main socket-outlet	N/A
	No risk of insertion into audio or video: outlets marked with the symbol of 5.2		N/A

Clause	Requirement – Test	Result - Remark	Verdict
15.1.3	Output terminals of a.c. adaptors or similar devices not compatible with household mains socket-outlets	No such output terminal	N/A
15.2	Provision for protective earthing		
	Accessible conductive parts of Class I equipment reliably connected to earth terminal, within equipment	Fixed by a screw with washer	P
	Class I supply equipment with non-hazardous live output voltage: output circuit not connected to earth		N/A
	Protective earth conductors correctly coloured	Green/Yellow wire used	P
	Equipment with non-detachable mains cord provided with separate protective earth terminal near mains input		P
	Protective earth terminal resistant to corrosion	No risk of corrosion	P
	Earth resistance test: < 0,1 Ω at 25 A	: 0.019	P
15.3	Terminals for external flexible cords and for permanent connection to the mains supply		N/A
15.3.1	Adequate terminals for connection of permanent wiring		N/A
15.3.2	Reliable connection of non-detachable cords:		P
	Not soldered to conductors of a printed circuit board		P
	Adequate clearances and creepage distances between connections should a wire break away		P
	Wire secured by additional means to the conductor		P
15.3.3	Screws and nuts clamping conductors have adequate threads: ISO 261, ISO 262 or similar		P
15.3.4	Soldered conductors wrapped around terminal prior to soldering or held in place by additional means		N/A
	Clamping of conductor and insulation if not soldered or held by screws		N/A
15.3.5	Terminals allow connection of appropriate cross-sectional area of conductors, for the rated current of the equipment	0.75 mm ²	P
15.3.6	Terminals to 15.3.3 have sizes required by table 16	3.0 mm	P
15.3.7	Terminals clamp conductors between metal and have adequate pressure		P
	Terminals designed to avoid conductor slipping out when tightened or loosened		P

Clause	Requirement – Test	Result - Remark	Verdict
	Terminals adequately fixed to avoid loosening when the clamping is tightened or loosened and stress on internal wiring is avoided		P
15.3.8	Terminals carrying a current more than 0,2 A: contact pressure not transmitted by insulating material except ceramic		P
15.3.9	Termination of non-detachable cords: wires terminated near to each other		P
	Terminals located and shielded: test with 8 mm strand		P
15.4	Devices forming a part of the mains plug		N/A
15.4.1	No undue strain on mains socket-outlets	No devices forming a part of the mains plug	N/A
15.4.2	Device complies with standard for dimensions of mains plugs		N/A
15.4.3	Device has adequate mechanical strength (tests a,b,c)		N/A

16	EXTERNAL FLEXIBLE CORDS		
16.1	Mains cords sheathed type, complying with IEC 60227 for PVC or IEC 60245 for synthetic rubber cords	(see appended table 14)	P
	Non-detachable cords for Class I have green/yellow core for protective earth		P
16.2	Mains cords conductors have adequate cross-sectional area for rated current consumption of the equipment	0.75 mm ²	P
16.3	a) Flexible cords not complying with 16.1, used for interconnections between separate units of equipment used in combination and carrying hazardous live voltages, have adequate dielectric strength	No interconnection cords	N/A
	b) Flexible cords not complying with 16.1, withstand bending and mechanical stress (3.2 of IEC 60227-2)		N/A
16.4	Flexible cords used for connection between equipment have adequate cross-sectional areas to avoid temperature rise under normal and fault conditions	No interconnection cords	N/A
16.5	Adequate strain relief on external flexible cords		P
	Not possible to push cord back into equipment		P
	Strain relief device unlikely to damage flexible cord		P

Clause	Requirement – Test	Result - Remark	Verdict
	For mains cords of Class I equipment, hazardous live conductors become taut before earth conductor		P
16.6	Apertures for external flexible cord: no risk of damage to the cord during assembly or movement in use		P
16.7	Transportable musical instruments and amplifiers fitted with detachable cord set with appliance inlet to IEC 60320-1		N/A
	Transportable musical instruments and amplifiers fitted with detachable cord sets or with means of stowage to protect the cord		N/A
17	ELECTRICAL CONNECTIONS AND MECHANICAL FIXINGS		
17.1	Torque test to table 20:		P
	- screws into metal: 5 times	Screw fixing the metallic enclosure	P
	- screws into non-metallic material: 10 times		N/A
17.2	Correct introduction into female threads in non-metallic material		N/A
17.3	Cover fixing screws: captive	No captive screws	N/A
	Non-captive fixing screws: no hazard when replaced by a screw whose length is 10 times its diameter	The distance was not less than those in cl.13	P
17.4	No loosening of conductive parts carrying a current > 0,2 A	Secured by connector	P
17.5	Contact pressure not transmitted through plastic other than ceramic for connections carrying a current > 0,2 A	Not transmitted through insulating material	P
17.6	Stranded conductors of flexible supply cords carrying a current > 0,2 A with screw terminals not consolidated by solder		N/A
17.7	Cover fixing devices other than screws have adequate strength and their positioning is unambiguous		N/A
17.8	Fixing devices for detachable legs or stands provided		P
17.9	Internal pluggable connections, affecting safety, unlikely to become disconnected		N/A
18	MECHANICAL STRENGTH OF PICTURE TUBES AND PROTECTION AGAINST THE EFFECTS OF IMPLOSION		
	Picture tube separately approved to IEC 61965:	No picture tube.	N/A

Clause	Requirement – Test	Result - Remark	Verdict
	Picture tube separately approved to 18.1		N/A
18.1	Picture tubes > 16 cm intrinsically protected		N/A
	Non-intrinsically protected tubes > 16 cm used with protective screen		N/A
	Protective film as part of implosion protection: edges covered by enclosure		N/A
18.2	Intrinsically protected tubes: tests on 12 samples		N/A
18.2.1	Samples subject to ageing: 6		N/A
18.2.2	Samples subject to implosion test: 6		N/A
18.2.3	Samples subject to mechanical strength test (steel ball): 6		N/A
18.3	Non-intrinsically protected tubes tested to 18.3		N/A
19	STABILITY AND MECHANICAL HAZARDS		
	Mass of the equipment exceeding 7 kg : Mass : 3. 7 kg		N/A
	Apparatus intended to be fastened in place – suitable instructions		P
19.1	Test on a plane, inclined at 10° to the horizontal		N/A
19.2	100 N force applied vertically downwards		N/A
19.3	Apparatus mass > 25 kg or height > 1 M or supplied with cart or stand	No exceeding 25 kg	N/A
19.4	Edges or corners not hazardous	Not hazardous	P
19.5	Glass surfaces with an area exceeding 0,1 m ² or maximum dimension > 450 mm, pass the test of 19.5.1	No large glass	N/A
19.6	Wall or ceiling mountings adequate	Load; 11.1 kg	P
20	RESISTANCE TO FIRE		
20.1	Electrical components and mechanical parts		
	a) Exemption for components contained in an enclosure of material V-0 to IEC 60695-11-10 with openings not exceeding 1 mm in width		N/A
	b) Exemption for small components as defined in 20.1		P
20.1.1	Electrical components meet the requirements of Clause 14 or 20.1.4	Meet the requirements of 20.1.4	P
20.1.2	Insulation of internal wiring working at voltages > 4 Kv or leaving an internal fire enclosure, or located within the areas mentioned in Table 21, not contributing to the spread of fire	Insulation of wiring is PVC and 4 KV no high voltage exceeding	N/A

Clause	Requirement – Test	Result - Remark	Verdict
20.1.3	Material of printed circuit boards on which the available power exceeds 15 W at a voltage between 50 V and 400 V (peak) a.c. or d.c. meets V-1 or better to IEC60707, unless used in a fire enclosure	Used the rated minimum V-0 PCB	P
	Material of printed circuit boards on which the available power exceeds 15 W at a voltage >400 V (peak) a.c. or d.c. meets V-0 to IEC 60707		P
20.1.4	Components and parts not covered by 20.1.1, 20.1.2 and 20.1.3 (other than fire enclosures) mounted nearer to a potential ignition source than the distances in Table 21 comply with the relevant flammability category in Table 21	(see appended table 14)	P
	Components and parts as above but shielded from a potential ignition source, with the barrier area in accordance with Table 21 and fig. 13	No required the barrier	N/A
	Apparatus with voltage >4kV under normal operating conditions and distances to the enclosure exceed those specified Table 21, flammability classification HB40 or better is required for the enclosure.		N/A
20.2	Fire enclosure		N/A
20.2.1	Potential ignition sources with open circuit voltage > 4 kV (peak) a.c. or d.c. contained in a fire enclosure to V-1	< 4 kV	N/A
20.2.2	Internal fire enclosures with openings not exceeding 1 mm in width and with openings for wires completely filled	No internal fire enclosure	N/A
20.2.3	Requirements of 20.2.1 and 20.2.2 met by an internal fire enclosure	No internal fire enclosure	N/A

A	APPENDIX A, ADDITIONAL REQUIREMENTS FOR APPARATUS WITH PROTECTION AGAINST SPLASHING WATER	
A.5.1	j) Marked with IPX4 (IEC 60529), 5.4.1 a) does not apply	IP66
A.10.2.1	Enclosure provides protection against splashing water	
A.10.2.2	Humidity treatment carried out for 7 days	N/A

B	APPENDIX B, APPARATUS TO BE CONNECTED TO THE TELECOMMUNICATION NETWORKS	
	Complies with IEC 62151 clause 1	No TNV circuits.
	Complies with IEC 62151 clause 2	N/A

Clause	Requirement – Test	Result - Remark	Verdict
	Complies with IEC 62151 clause 3 but with 3.5.4 modified to 2.4.10 of this standard		N/A
	Complies with IEC 62151 clause 4 but with 4.1.2, 4.1.3 and 4.2.1.2 modified in accordance with annex B of this standard		N/A
	Complies with IEC 62151 clause 5 but with 5.3.1 modified in accordance with annex B of this standard		N/A
	Complies with IEC 62151 clause 6		N/A
	Complies with IEC 62151 clause 7		N/A
	Complies with IEC 62151 annex A, B and C		N/A

L	APPENDIX L, ADDITIONAL REQUIREMENTS FOR ELECTRONIC FLASH APPARATUS FOR PHOTOGRAPHIC		
L5.4	Marking and Instructions	No electronic flash apparatus.	N/A
L9.1.1	Terminals to connection to synchroniser not HAZARDOUS LIVE		N/A
L7.1.5 & L11.2.6	Lithium batteries meet permissible temp rise in Table 3, unless comply with 6.3.2 of IEC 60086-4		N/A
L14.6.6	Mains switch characteristics appropriate to its function under normal conditions		N/A

Clause	Requirement – Test	Result - Remark		Verdict
7.1	TABLE: temperature rise measurements			
	Power consumption in the OFF/Stand-by	-		—
	Position of the functional switch (W)	:		—
Operating conditions				
	Un (V)	In (mA)	Pn (W)	Pout (W)
207 V, 50 Hz	39		8.1	-
230 V, 50 Hz	43		10.0	-
253 V, 50 Hz	47		12.1	-
	Loudspeaker impedance (Ω)	No loudspeaker		—
	Several loudspeaker systems	-		N/A
	Marking of loudspeaker terminals	-		N/A
Monitored point:			dT (K)	Limit dT (K)
		207 V 50 Hz	253 V 50 Hz	
1. AC lead wire	3.6	5.7	60	
2. Fuse holder	3.1	5.1	50	
3. AC connector (J1)	3.5	5.8	50	
4. AC Fan body	3.6	6.0	40	
5. Metal bracket	5.2	7.9	40	
6. Front window	13.6	19.1	-	
7. Bottom enclosure	3.0	4.7	40	
8. Ambient	21.6 °C	21.6 °C	-	
	Winding temperature rise measurements			N/A
	Ambient temperature t1 (°C)	-		—
	Ambient temperature t2 (°C)	-		—
Temperature rise dT of winding:		R ₁ (Ω)	R ₂ (Ω)	dT (K)
				Limit dT (K)
				Insulation class

Clause	Requirement – Test	Result - Remark		Verdict
7.2	TABLE: softening temperature of thermoplastics			N/A
Temperature T of part		T - normal conditions (°C)	T - fault conditions (°C)	T softening (°C)
10.3	TABLE: insulation resistance measurements			P
Insulation resistance R between:		R (MΩ)	Required R (MΩ)	
Primary – Enclosure (Ground)		≥ 100	≥ 2	
10.3	TABLE: electric strength measurements			P
Test voltage applied between:		Test voltage (V)	Breakdown	
Primary – Enclosure (Ground)		2 120 Vp	No	
11.2	TABLE: summary of fault condition tests			P
	Voltage (V) 0,9 or 1,1 times rated voltage	253	—	
	Ambient temperature (°C)	20-30	—	
fault condition, state component short- or open circuited and components whose temperature rises are measured		supply voltage	result, state effect of fault condition and the duration of the test	
Interruption of Protect Earth		253	Normal operated, No hazard. Duration: 30 min., Final input current: 45 mA	
	Winding temperature rise measurements			N/A
	Ambient temperature t1 (°C)		—	
	Ambient temperature t2 (°C)		—	

Clause	Requirement – Test			Result - Remark	Verdict
14	TABLE: list of critical components and materials				P
Component	Manufacturer/ trademark	Type/model	Value / rating	Standard	Approval/ Reference
Fuse	Littelfuse	215	2 A H 250V	IEC/EN 60127-2	VDE
Multiway terminal block with Fuse holder	Openwise Industrial Limited	540	2.5/4.0 mm ² , 400 V with fuse holder 6.3 A, 250, 2.5 W	EN 60998-2-1, EN 60127-6	FIMKO
AC Fan	Fulltech Electric Co., Ltd.	UF-60D23	230 V, 50/60 Hz, 5/4 W	EN 60335-1	VDE
Bimetal Thermostat (SW2)	Inchang Electronics Co., Ltd.	KS-2R R45	250 V, 7.5 A, 45 °C	EN 60730-1, EN 60730-2-9	VDE
Bimetal Thermostat (SW1, SW3)	Inchang Electronics Co., Ltd.	KS-2N N15	250 V, 7.5 A, 4 °C	EN 60730-1, EN 60730-2-9	VDE
Low-Heater 1,2	Jiangyin Huilong Heater Co., Ltd.	-	230 V, 20 W	EN 60065	Tested in equipment
DEF Heater	Jiangyin Huilong Heater Co., Ltd.	-	230 V, 10 W	EN 60065	Tested in equipment
Cable Grand 1	Heyco Products Inc	3232	V-2, IP68, 1/2"	-	UL
Cable Grand 2,3	Heyco Products Inc	3229	V-2, IP68, 3/8"	-	UL
PCB	Ningbo Junchao Electronic Technology Co., Ltd.	JC	V-0, 105 °C	UL 796	UL
¹) an asterisk indicates a mark which assures the agreed level of surveillance					

Clause	Requirement – Test	Result - Remark	Verdict
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ZB	ANNEX ZB TO EN 60 065, SPECIAL NATIONAL CONDITIONS		
2.6.1	DK: certain types of Class I apparatus, see 15.1.1, may be provided with a plug not establishing earthing continuity when inserted in Danish socket-outlets		N/A
13.3.1	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		N/A
15.1.1	DK: mains cord for single-phase equipment having a rated current not exceeding 10 A shall be provided with a plug according to Heavy Current Regulations Section 107-2-D1		N/A
	DK: Class I equipment with socket-outlets with earthing contact, or which are intended to be used in locations where protection against indirect contact is required shall be provided with a plug in compliance with Standard Sheet DK 2-1a		N/A
	DK: socket-outlets for providing power to Class II equipment with a rated current of 2,5 A shall have dimensions according to the drawing on page 131 of EN 60 065:98 other dimensions shall be to IEC 60 083 Standard Sheet C 1a for portable socket-outlets		N/A
	DK: mains socket-outlets with earthing contact shall comply with Heavy Current Regulations Section 107-2-D1, Standard Sheet DK1-3a, DK 1-5a or DK 1-7a		N/A
	GB: equipment fitted with a flexible cable or cord provided with a 13A BS 1363 plug as in Statutory Instrument 1768:94		N/A
	IE: equipment fitted with a flexible cable or cord provided with a 13A plug in accordance with Statutory Instrument 525:97		N/A
	NO: mains socket-outlets on Class II equipment meet CEE Publication 7 with the following amendments:		N/A
	- dimensions 2,5 A, 250 V socket-outlets shall comply with Standard Sheet 1 page 132 of EN 60 065:98		N/A
	-mechanical strength 2,5 A, 250 V socket-outlets tested as specified in EN 60 065, 12.1.3		N/A
	-protecting rim also tested		N/A

Clause	Requirement – Test	Result - Remark	Verdict
	NO: method b) of 8.1 is not permitted. Double or reinforced insulation is required between parts connected to the mains and parts connected to the public telecommunications network		N/A
J.2	NO: In Norway, due to IT power distribution system used, the a.c. MAINS supply voltage is considered to be equal to the line-to-line voltage, and will remain 230V in case of a single earth fault.		N/A
ZC	ANNEX ZC TO EN 60 065, A-DEVIATIONS		
5	DE: additional markings required in German language:		
	-cathode ray tubes with an accelerating voltage between 20 kV and 30 kV (marking on the tube)		N/A
	-TV receivers whose picture tube has an accelerating voltage between 20 kV and 30 kV		N/A
	-TV receivers whose picture tube has an accelerating voltage greater than 30 kV		N/A
	TV receivers whose picture tube has an accelerating voltage less than 20 kV		N/A
5.1	IT: additional markings on the outside of the TV receiver in Italian language		N/A
	IT: user instructions in Italian language including a conformity declaration		N/A
	IT: certification number on the back cover		N/A
14	SE: Switches containing mercury such as thermostats, relays and level controllers are not allowed		N/A



Fig 1. Outside view 1



Fig 2. Outside view 2



Fig 3. Inside view